

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number
WO 2005/037431 A1

(51) International Patent Classification⁷: B01J 23/86, 37/03, C07C 17/00

(21) International Application Number:
PCT/US2004/034446

(22) International Filing Date: 13 October 2004 (13.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/511,353 14 October 2003 (14.10.2003) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/037431 A1

(54) Title: CHROMIUM OXIDE COMPOSITIONS CONTAINING ZINC, THEIR PREPARATION, AND THEIR USE AS CATALYSTS AND CATALYST PRECURSORS

(57) Abstract: A chromium-containing catalyst is disclosed which includes both $ZnCr_2O_4$ and crystalline α -chromium oxide. The $ZnCr_2O_4$ contains between about 10 atom percent and 67 atom percent of the chromium in the composition and at least about 70 atom percent of the zinc in the composition, and at least about 90 atom percent of the chromium present as chromium oxide in the composition is present as $ZnCr_2O_4$ or crystalline α -chromium oxide. Also disclosed are a method for preparing this composition comprising $ZnCr_2O_4$ and crystalline α -chromium oxide; and a chromium-containing catalyst composition prepared by treatment of the composition comprising $ZnCr_2O_4$ and crystalline α -chromium oxide with a fluorinating agent. Also disclosed is a process for changing the fluorine distribution in a halogenated hydrocarbon, or incorporating fluorine in a saturated or unsaturated hydrocarbon, in the presence of at least one composition selected from the group consisting of (i) the $ZnCr_2O_4$ and crystalline α -chromium oxide compositions and (ii) the $ZnCr_2O_4$ and crystalline α -chromium oxide compositions which have been treated with a fluorinating agent.